

U.S. Patent Application No. 10/510,385

Docket No. 4590-340

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (previously presented) A process of fabricating a microstructure having a vacuum cavity, comprising the following steps:
 - a) producing, in the thickness of a first silicon wafer, a porous silicon region intended to format least a part of one wall of the cavity and capable of absorbing residual gases in the cavity; and
 - b) joining the first silicon wafer to a second wafer, so as to produce the cavity.
2. (previously presented) The process as claimed in claim 1, wherein step a) furthermore includes a step of impregnating the porous silicon region with another material that can also absorb residual gases in the cavity.
3. (previously presented) The process as claimed in claim 1, wherein when the cavity has a predetermined height, the joining operation of step b) is carried out by means of an intermediate wafer whose thickness contributes to the height of the cavity.
4. (previously presented) The process as claimed in claim 1, wherein prior to step b), the process includes a step of carrying out a physico-chemical preparation of the surfaces of the wafers used in step b).
5. (previously presented) The process as claimed in claim 1, wherein prior to step b), the process includes a step of outgasing the wafers used in step b).

U.S. Patent Application No. 10/510,385

Docket No. 4590-340

6. (previously presented) The process as claimed in claim 1, wherein the joining operation of step b) is carried out under vacuum.

7. (previously presented) The process as claimed in claim 6, wherein the joining operation is carried out by bonding at ambient temperature.

8. (previously presented) The process as claimed in claim 7, wherein the process includes a step c) of annealing, at between 400 and 1000°C, the microstructure obtained after step b) so as to strengthen the bond.

9. (previously presented) The process as claimed in claim 2, wherein the other material that can also absorb the residual gases in the cavity consists of titanium.

10. (previously presented) The process as claimed in claim 1, wherein the second wafer and/or the intermediate wafer are made of silicon or glass.

11. (previously presented) The process as claimed in claim 1, wherein the process is applied collectively to several microstructures.

12. (currently amended) A microstructure, fabricated by a process as claimed in claim 1, having a vacuum cavity, comprising:

at least two wafers that contribute to bounding the cavity, the first wafer of said two wafers, is made of silicon and includes a porous silicon region capable of absorbing residual gases in the cavity, the region being produced in the thickness of said silicon wafer.

U.S. Patent Application No. 10/510,385

Docket No. 4590-340

13. (previously presented) The microstructure as claimed in claim 12, wherein the porous silicon region is impregnated with another material that can also absorb residual gases in the cavity.

14. (previously presented) The microstructure as claimed in claim 13, wherein the other material that can also absorb residual gases in the cavity is titanium.

15. (previously presented) The microstructure as claimed in claim 12, wherein the wafers other than the first wafer are made of silicon or glass, or a combination of silicon and glass.

16. (previously presented) The microstructure as claimed in claim 12, wherein said microstructure includes a resonator housed in the cavity.

17. (previously presented) A sensor having a microstructure as claimed in claim 12.

18. (previously presented) The sensor as claimed in claim 17, wherein the sensor is a resonant pressure sensor or a resonator accelerometer or a vibrating gyroscope or an electromechanical filter.